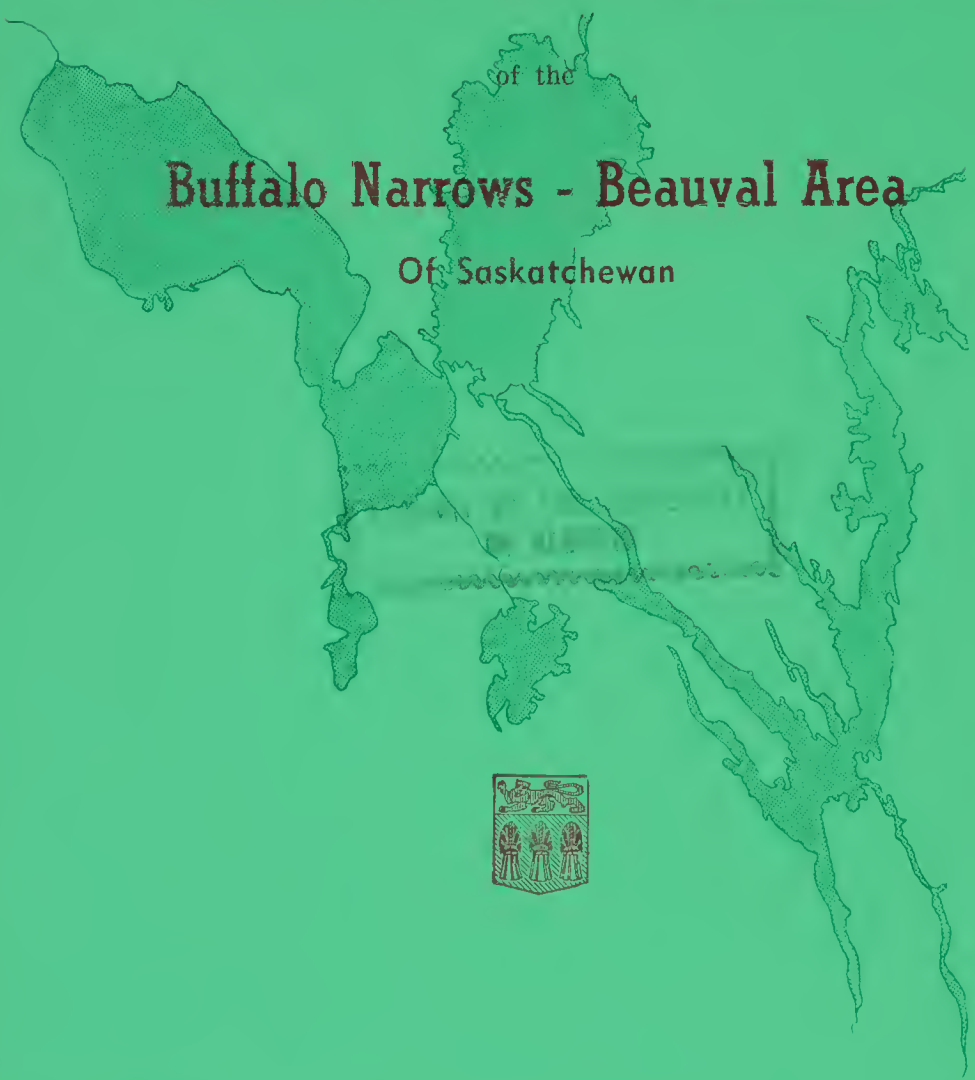
FOREST RESOURCES

of the

Buffalo Narrows - Beauval Area

Of Saskatchewan

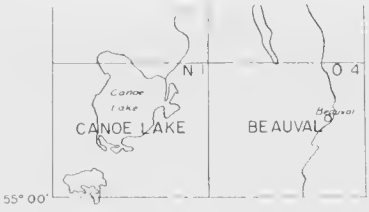


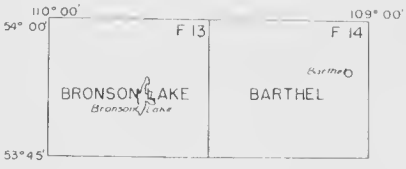
Forestry Branch

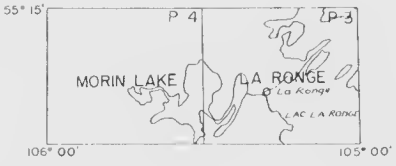
DEPARTMENT OF NATURAL RESOURCES

PROVINCE OF SASKATCHEWAN

1956







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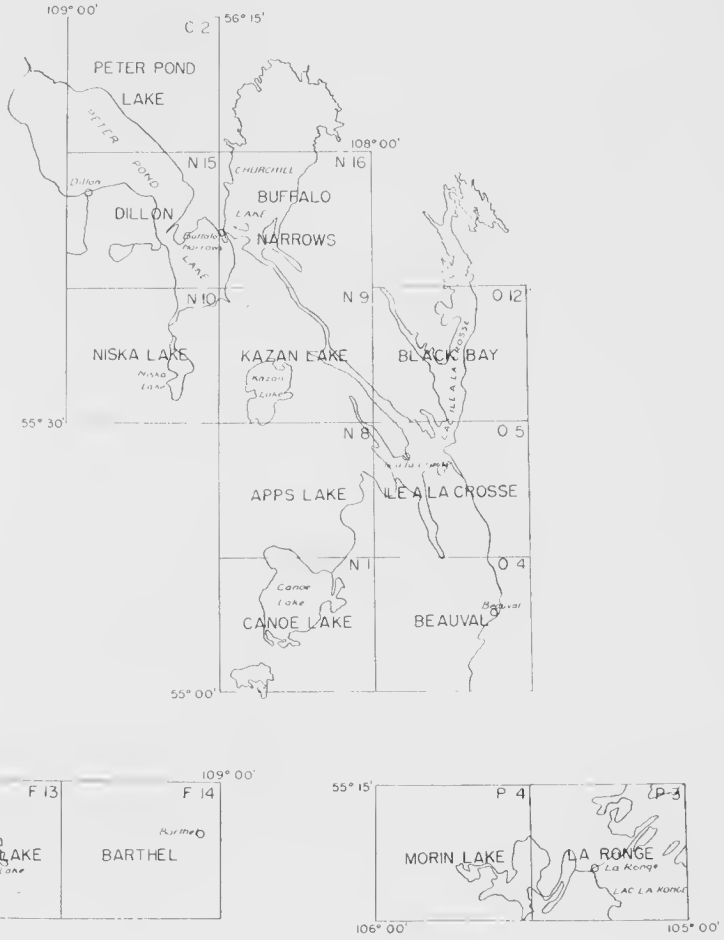

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BUFFALO NARROWS—BEAUVAL AREA

0 MILES 25

1956

Province of *Saskatchewan*

DEPARTMENT OF NATURAL RESOURCES

Prince Albert, Sask.,

REFER TO FILE

Forestry/H.O.
S/Forest Inventory
Reports

Dear Sir:

This report deals with a total area of 3 million acres in the west-central portion of Saskatchewan of which about 2.9 million acres are within the Provincial Forest. The Buffalo Narrows-Beauval report is the fifth and final report of the forest inventory series to be published since 1952. Its completion means that nearly 21 million acres of Provincial Forest land have now been surveyed with 11 million of those acres classified as productive forest.

Forest statistics presented in this report show that the region is short of mature timber stands but contains extensive areas of younger age classes of fast growing tree species such as poplar and jack pine.

The current annual increment exceeds the present yearly drain considerably. The calculated amount available for annual harvesting is in the neighbourhood of 5 million f.b.m. of lumber and about 15 thousand cords of pulpwood (all species). Due to the northern location and poor access roads, the utilization of forest resources in this area has been both difficult and limited in the past. The construction, however, of an all-weather road in 1955 from Green Lake to Beauval, and a projected extension as far as Buffalo Narrows in the future may change the whole situation to quite an extent.

Yours faithfully,

E. J. Marshall,
Director of Forests.

AK/DA

FOREST RESOURCES

of the

Buffalo Narrows - Beauval Area

of Saskatchewan

Forest Inventory Series Report No. 5

DEPARTMENT OF NATURAL RESOURCES
PROVINCE OF SASKATCHEWAN

1956

HON. J. H. BROCKELBANK
Minister

J. W. CHURCHMAN
Deputy Minister

E. J. MARSHALL
Director of Forests

PREPARED BY FOREST INVENTORY DIVISION

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Drafting of maps and charts by S. F. Tickner and R. E. Madden.

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Photo credits are extended to R. A. Haig, C. S. Brown, F. H. Hewett, H. W. Read, G. C. Savage and A. Kabzems.

Appreciation is also expressed to A. Dickson for his editing of the manuscript.

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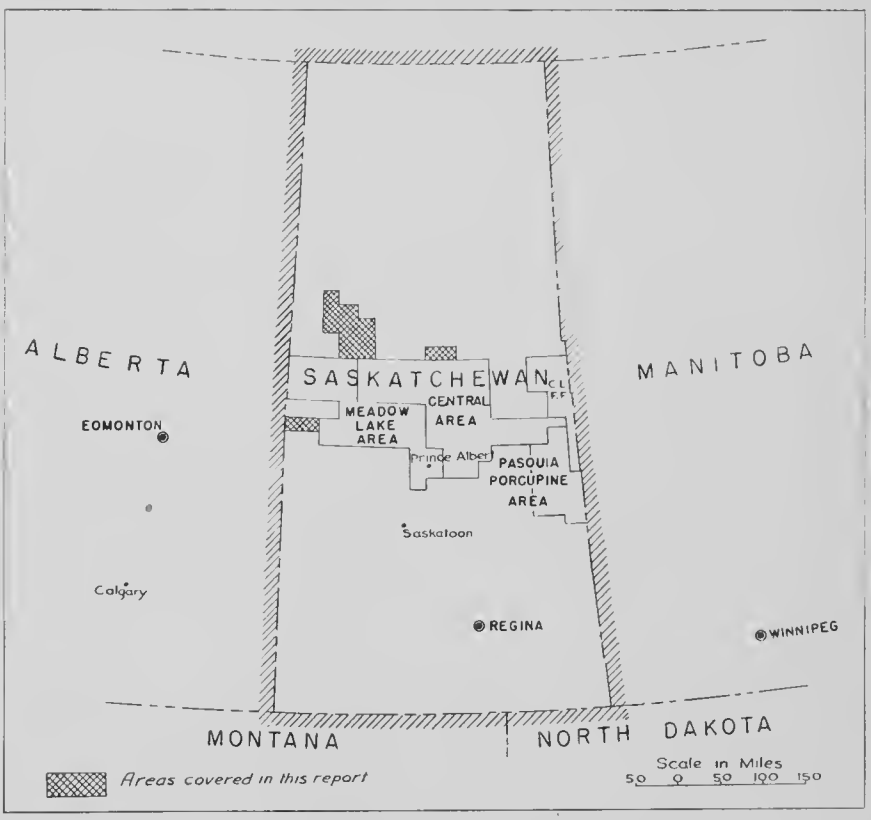
THE FOREST INVENTORY OF SASKATCHEWAN

In 1947, the Saskatchewan Royal Commission on Forestry recommended that an inventory be made of the forest resources of Saskatchewan to determine the extent of the existing areas of each forest type, its age class and the condition of young and advanced growth. In order to plan for the future harvesting of trees, presently immature, the Royal Commission further recommended that studies be made to obtain information on the present and expected rate of growth of our tree species under various conditions of soil, moisture and association with other species.

The forest inventory survey was started in 1947 by the Forestry Branch, Department of Natural Resources, following the above recommendations. Financial assistance has been provided since 1951 as an implementation of the Federal Government's Canada Forestry Act.

This report deals with an area of 3,060,262 acres (comprising 14 map sheets), of which 2,893,904 acres are within the Provincial Forest. The Buffalo Narrows - Beauval Report is the fifth such report to have been produced and published since 1952. Its completion means that nearly 21 million acres of Provincial Forest land have now been surveyed, with 11 million of those acres classified as productive forest.



Location of Survey Areas
Figure 1

Besides the regular inventory work, a reconnaissance survey has been carried out on nearly 43,000 square miles between the 55th and 57th parallels to obtain preliminary information on the quantity and nature of the forest resources in the northern Pre-Cambrian areas.

A similar reconnaissance was done on about 18,000 square miles along the southern boundary of the forest belt, to survey farm woodlots and forested lands outside the Provincial Forests.

The rate of growth and the extent and composition of natural regeneration of Saskatchewan's forests have also been investigated.

DESCRIPTION OF SURVEY AREA

(a) Geographic and Physical Features

The main area covered by this report lies in the west-central portion of Saskatchewan which is between 55° and 56° latitude, and 107° 30′ and 109° longitude (see index to map sheets and Figure 1). Two smaller, separate areas are also included in this report: (a) the land (434,089 acres) surrounding Morin Lake and Egg Lake and that along the western edge of Lac la Ronge; and (b) a portion (328,029 acres) of the Bronson Provincial Forest. This latter area will be treated separately in each of the subsequent chapters. The supplementary areas together contain 762,118 acres of Provincial Forest and are covered by four map sheets.

The principal communities in this area are the settlements of Buffalo Narrows, Beauval, Ile a la Crosse, Patuanak, Dillon and the newly incorporated village of La Ronge.

The forests of the Buffalo Narrows - Beauval area are situated in the Hyper-Churchill Section of the Northwestern Division of the Boreal Forest Region (W. E. D. Halliday, "A Forest Classification for Canada", 1937).

Photo No. 1. White poplar is the predominant tree species both by volume and area.

Aspen and jack pine species predominate on the uplands (Photos No. 1 and No. 2), while black spruce and tamarack are associated with the poorly drained land of the area.

Photo No. 2. Jack pine is well adapted to dry, sandy soils.

Photo No. 3. Sandy ridges with jack pine and poorly drained muskegs with or without a tree coverage are common features of the report area.

The topography is characterized by numerous lakes, streams, muskegs and rolling morainic uplands. A definite northwesterly trend, seen

in the direction of bays, streams and linear muskegs in the area, can be attributed to glacial action (see the front cover). The surface soil consists mostly of coarse-textured glacial till, recent organic (peat) deposits and local lake (lacustrine) sediments. This is underlain by sandstones and igneous rocks of the Cretaceous period. The bed-rock lies at a considerable depth and has no influence on the surface soil. In a preliminary study Mr. H. C. Moss, University of Saskatchewan, classifies the soils as gray Podzol (gray wooded), developed under a forest cover. They are lighter (more sandy) textured, more acid and lower in potential fertility than the majority of gray soils in the province. This may be due to their origin or the effect of the regional sub-humid climate. While the normal, annual precipitation of nearly 15 inches for the Buffalo Narrows-Beauval district is no more than that at the corresponding longitude on the prairie areas, it is more effective because evaporation is lower due to the less frequent occurrence of drying winds. Generally, the length of growing season is shorter for the northern areas, but longer days in the summer, stimulating the growth of the vegetation, and the modifying influence of large lakes, delaying frost in the fall, serve to compensate in some measure, thus allowing certain local areas to enjoy favourable growing and climatic conditions.

The portion of the area consisting of the Bronson Provincial Forest is situated in the Mixedwood Section of the Boreal Forest Region. The topography is a prominent series of rounded hills, interrupted by deep valleys, local muskegs and grass meadows (Photo No. 4). Dominant features of the area are the dry sloughs and small kettle lakes with declining water tables (Photo No. 5). Most of the soil is classified as "morainic gray sandy loam" to "sand over clay sub-soil", with rocks and gravel embedded in places. This type of soil is superior to that in the Buffalo Narrows - Beauval area for both agricultural and forest crops.

Photo No. 4. A typical view of the Bronson Provincial Forest five years after the devastating 1949 fire.

Photo No. 5. The numerous dried-out ponds and sloughs provide good hay meadows in the Bronson Provincial Forest Area.

(b) Historical Notes

The Buffalo Narrows-Beauval region was prominent in the early fur trade, since it lies across the main fur-trade routes. Lac Ile a la Crosse and Peter Pond Lake formed a major link in the route joining Hudson Bay and Eastern Canada with the rich fur-producing areas of the far North. Some of the posts established by the rival fur-trading companies remain as settlements today.

The main settlements are Ile a la Crosse, Buffalo Narrows and La Ronge, with smaller centres located at Beauval, Patuanak and Dillon. Ile a la Cross is one of the oldest settlements in Saskatchewan. A trading post was established there in 1776, and it was apparently a centre of native activity prior to the fur-trade era. Today its 500 inhabitants are mostly trappers or commercial fishermen.

Buffalo Narrows, situated at the narrows linking Churchill Lake and Peter Pond Lake, is a relatively new settlement, established in 1900. It has grown rapidly, and today is an important centre for commercial fishing and mink ranching.

La Ronge was first established in 1780 as a fur-trading post by Peter Pond and his associates. It is now accessible by road and the excellent angling waters in the area are attracting tourists and sportsmen in ever-increasing numbers. It is the centre of northern air and radio communications. The settlement has recently been incorporated as a village.

The other settlements of the area are mainly centres of native activity, although Beauval is beginning to become important from a tourist standpoint, now that a road link with Green Lake has been completed.

The Bronson Provincial Forest is situated about 60 miles north and east from Lloydminster, Saskatchewan, at the Saskatchewan - Alberta

Photo No. 6. Buffalo Narrows Settlement.

boundary. It extends over an area of 373,427 acres and was initially established as a Provincial Forest under The Forest Act of 1931.

During the two decades following its establishment, the Bronson Provincial Forest was largely laid waste by devastating forest fires, coupled with unscrupulous exploitation. Several attempts were made at this time, to promote arable or livestock farming, but these were unsuccessful. Such, in fact, was the condition of the area, that in 1949 — and for the next few years — the authorities questioned whether it was in the best interest of the province to retain it as a forest reserve. Only after several examinations by both forestry and agricultural experts was the decision made to maintain the area as such.

Since that time, additional fireguards and roads have been constructed and fire towers erected, as measures of protection against forest fires.

Each year since 1952, a program of scarification has been conducted by means of the Athens plow and seeding by the Cyclone seeder on the burned-over areas in the Provincial Forest. Jack pine, lodgepole pine and white spruce, have already been seeded on an area of 440 acres. Present indications are that the scarification and seeding operations have been successful, and that the extensive burned-over areas in the Bronson Forest can and will, in time, produce a timber harvest again.

The Buffalo Narrows-Beauval area is administered by the Northern District office of the Department of Natural Resources in Prince Albert. The Bronson Provincial Forest lies within the boundaries of Meadow Lake District, and is administered through the District office in Meadow Lake. The staff members of these two districts implement various programs relating to the management and conservation of natural resources.

ECONOMIC CHARACTERISTICS

(a) Forest Harvesting

The utilization of the forest resources of the Buffalo Narrows - Beauval area has so far been restricted, chiefly because of the long hauling distance to the markets of the province.

The small sawmills, which are at present in operation in Ile a la Crosse, Buffalo Narrows and La Ronge, were established primarily to meet local demands for lumber. Several attempts were made in 1947-48 to market the produce of the sawmill at Buffalo Narrows through the mill at Big River, but this practice proved to be too costly and so was discontinued. The Saskatchewan Timber Board now maintains a lumber yard at La Ronge for the purpose of supplying the local population with planed, as well as rough lumber. The marketing of this produce in Prince Albert is not a general practice currently because of the long truck hauls involved.

The small sawmills are able to saw the local lumber requirements within a short period of time and so provide only seasonal employment for a few of the inhabitants. It is expected, however, that increased demands by the southern markets for lumber from the northern communities, coupled with road improvements, will overcome the heavy trucking costs which are, at present, inhibiting the development of the lumbering business in those places.

The following records at the Northern District office show the amounts of timber produced in the various localities for the period, March (1952) - March (1955):—

1952:	Ile a la Crosse	95,637	f.b.m. of white spruce
	Lac la Ronge	281,000	f.b.m. of white spruce
		22,795	f.b.m. of white poplar
1953:	Ile a la Crosse	111,489	f.b.m. of white spruce
	Buffalo Narrows	25,000	f.b.m. of white spruce
	Lac la Ronge	901,000	f.b.m. of white spruce
		5,000	f.b.m. of white poplar
		5,000	f.b.m. of tamarack
1954:	Buffalo Narrows	81,000	f.b.m. of white spruce
		843	f.b.m. of white birch
	Lac la Ronge	600,000	f.b.m. of white spruce
		8,000	f.b.m. of white poplar
	Total, all species	2,136,761	f.b.m.
	Annual average	712,000	f.b.m.

The policy of the Department of Natural Resources in regard to fuelwood, is that licenced prospectors, trappers and fishermen may be granted a permit, free of dues, for not more than fifteen cords of fuelwood for their own use in any one year. Other residents of the northern communities, not qualifying as above, may be granted a permit involving the payment of small dues.

It is difficult to determine the actual amount of fuelwood used, as many of the inhabitants neglect to obtain even the free permits for the cutting of it. However, on the basis that each family uses 15 cords of fuelwood each year, the amount cut or removed from the forest is from 6 to 8 thousand cords. This area has, of course, a much greater timber potential than that already indicated: the total, calculated amount available for annual harvesting includes 6 to 7 million f.b.m. of lumber (all species) and 15 to 20 thousand cords of pulpwood.

Photo No. 7. This is one form of northern transportation

(b) Fur

The fur trade is the oldest economic activity of the Buffalo Narrows-Beauval area and, in terms of total numbers of people engaged, the most important activity. The staple wild furs taken are beaver and muskrat, although in certain parts of the area squirrel and weasel are quite important contributors to the income of the native trappers.

With the institution of stringent conservation measures to protect the supply of this resource, together with measures to improve methods of trapping and the preparation and care of pelts, the fur industry is once again in a thriving condition.

Mink ranching is a relatively new activity in the area, although it is one that is expanding rapidly. During the 1955-56 season there were 33 mink farms in the area raising over 21,000 mink. The industry is based on the abundant supply of coarse fish in the major lakes of the area, which forms the great bulk of the mink food.

(c) Fishing

Fish have always formed the basic staple diet of the native inhabitants of the area. Also, dogs kept for winter transportation are fed largely on fish. The fish taken for domestic use include most of the available species. Commercial fishing is becoming relatively more important in the economy of the area. The major lakes are all fished commercially, and the establishment of filleting plants has helped to stimulate the growth of the industry. Whitefish is the most important species, although pickerel, trout, pike and tullibee are all netted for commercial purposes.

(d) Recreation

The northern part of Saskatchewan is becoming increasingly attractive to tourists because of the excellent sport-fishing potential and the scenic qualities of the area. Lac la Ronge has become one of the main sport-fishing lakes in the province, and the village of La Ronge has experienced a tourist boom.

The recent completion of an all-weather road to Beauval has increased the tourist potential of this area. Extension of the road north to Buffalo Narrows should open up the whole area to further tourist development.

Photo No. 8. Commercial fishing offers full or seasonal employment for many residents of the area.

THE FOREST AREA

The productive forest land in the Buffalo Narrows - Beauval area is close to 976,000 acres in extent (38% of the total area), while non-productive land occupies 796,000 acres (31%). A further 173,000 acres (6.7%) are made up of non-forested land (Table1). The non-productive and non-forested lands, plus the 622,000 acres (24.3%) occupied by water, amount to almost two-thirds of the total area, thus leaving about one-third of it for the production of wood. This latter area is further reduced by the subtraction of burned-over land to 879,000 acres (32.4%) actually bearing trees or forest stands (Table 2).

On these productive and forested acres, softwood cover-types make up a predominating 37.8%, while hardwood stands rank in second place by occupying 28.8%. Mixedwood areas bring up the rear by utilizing only 23.5%. Spruce and jack pine share almost equally between them the entire area of the softwood cover-types.

Photo No. 9. Mixed stands of aspen and white spruce are growing very well on better sites.

Although the cover-types are fairly evenly distributed on an area basis, their distribution according to stand size-classes is not so favourable. Mature stands, available for immediate harvesting, compose only 2.2% of the area; and of those, three-quarters consist of overmature poplar of low commercial value. Fortunately, a much larger area of third size-class stands — 175,000 acres or 18.0% —, made up of the more valuable softwood and mixedwood types, is available for some utilization at the present time. Because of the poorer productivity of the forest soils in the survey area, poplar and jack pine in the third size-class may be considered mature and ready for harvesting.

Having had most of its area (approximately 75%) burned over, the Bronson Provincial Forest is in rather a special position. Its presently productive area of 68,000 acres supports stands in the reproductive stage (less than 30 feet high) and in the cordwood size-class (30 to 50 feet high). White poplar is the predominant species in all size-classes and cover-types.

Figures 2, 3 and 4 illustrate the classification of land and forest stands in the combined area surveyed.

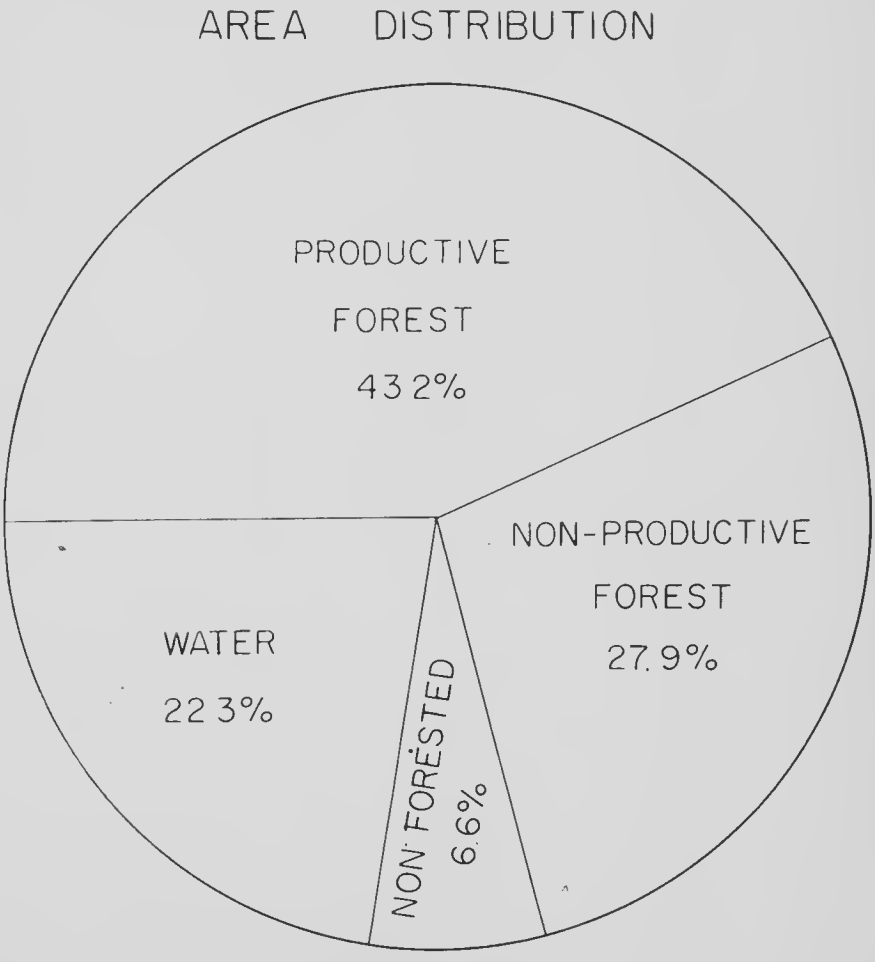
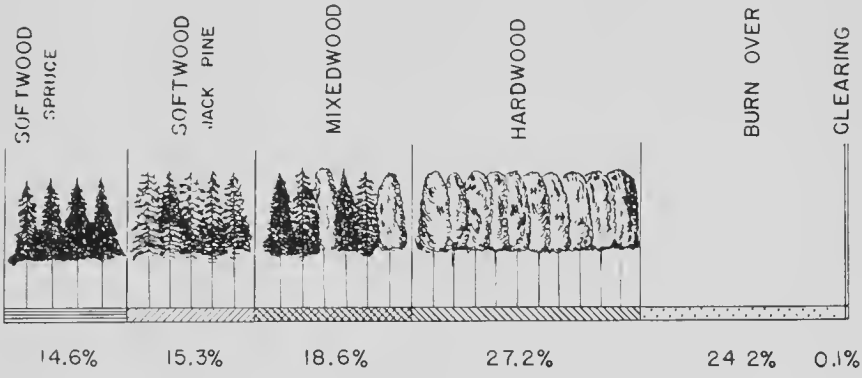


Figure 2 (Source table 1)

PRODUCTIVE FOREST AREA

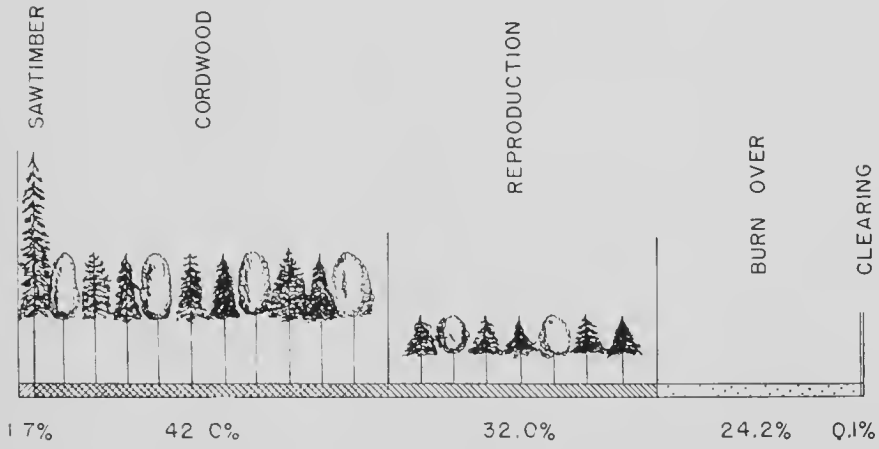
DISTRIBUTION BY COVER-TYPES



(Source Table 2)
Figure 3

PRODUCTIVE FOREST AREA

DISTRIBUTION BY SIZE-CLASSES



(Source Table 2)
Figure 4

TIMBER VOLUME

(a) Sawtimber Volume

Sawtimber volume is the volume of trees 9.6 inches and over in diameter at breast height, regardless of the stand size-class, expressed in board feet according to Clark's International Log Rule, ¼" kerf.

There are about 746 million board feet of sawtimber in the Buffalo Narrows - Beauval area. Of this amount 445 million (59.6%) board feet are hardwood and 301 million (40.4%) board feet are softwood. Only 196 million board feet (26.3%) of it are found on the sawtimber areas —i.e., in stands ready for harvesting.

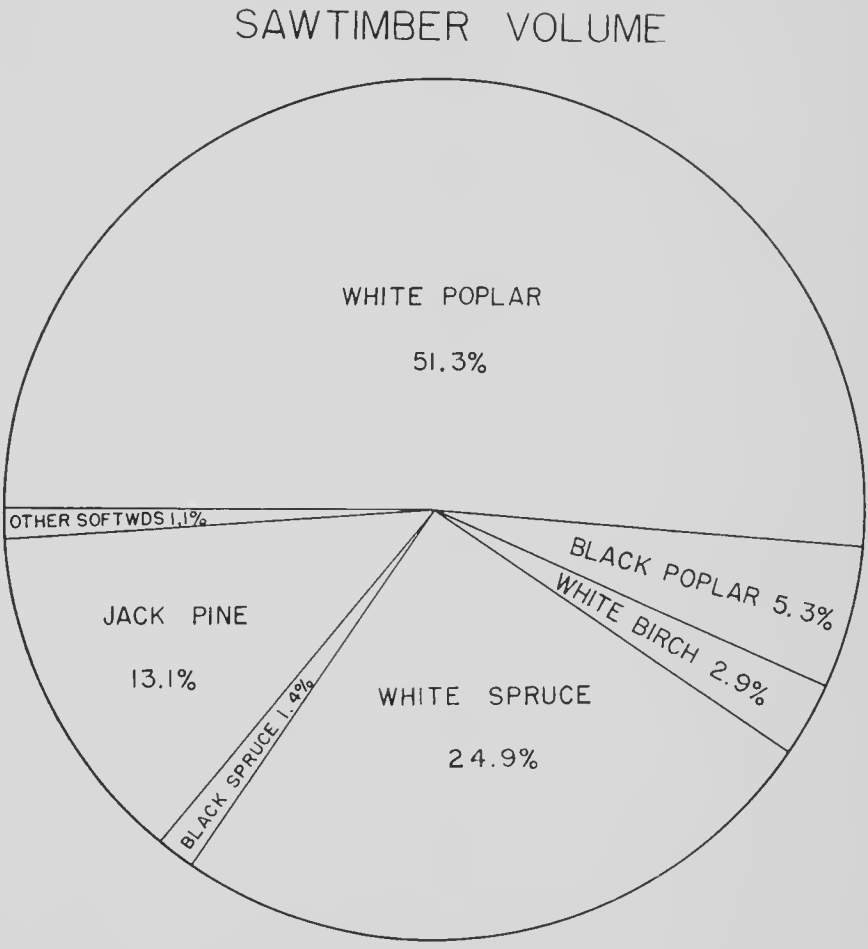


Figure 5 (Source table 4)

White poplar is estimated at 384 million board feet and is, by far, the predominant species (51.5%). Black poplar and white birch together make up 8.1 per cent of the sawtimber volume (61 million board feet).

Of the softwood species, white spruce is the most abundant and is estimated to comprise a volume of 187 million board feet. If only trees of 14 inches d.b.h. and over are considered, this volume is reduced to 81 million board feet. The jack pine species is estimated at 96 million board feet, while the remaining softwood species—black spruce, balsam fir and tamarack—make up a total of 18 million board feet.

The Buffalo Narrows - Beauval area is remote from the markets to its south with the result that little sawtimber is exported from the area. A few portable sawmills are in operation and are able to supply all local demands for lumber.

In the Bronson Provincial Forest, isolated stands of timber which escaped the numerous forest fires contain approximately 13 million board feet of sawtimber. Softwood species account for 6 million board feet (47.7%) and hardwood species are estimated to contain nearly 7 million board feet of sawtimber.

Of the softwood species, jack pine predominates and is estimated at 3.4 million board feet. White spruce is estimated to contain 1.8 million board feet, while the remaining softwood species—black spruce, tamarack and balsam fir — make up a total of approximately 1 million board feet.

White poplar accounts for more than 40 per cent of the total sawtimber stands with an estimated volume of 5.3 million board feet, while black poplar and white birch have a volume estimate of about 1.5 million board feet. Since, however, the sawtimber of the Bronson Forest is contained in the scattered clumps of residual forest and in those larger trees of the immature stands, its utilization is going to be both difficult and limited. (Figure 5 and Tables 4 and 4A provide the above statistics.)

(b) Cordwood Volume

Cordwood volume is the volume of solid wood, inside bark, contained in trees 3.6 inches to 9.5 inches in diameter at breast height, expressed in standard cords of 128 cubic feet of stacked rough wood.

In the Buffalo Narrows - Beauval area there are about 6.1 million cords of cordwood, of which 3.3 million cords (54.2%) are of the softwood species and 2.8 million cords (45.8%) of the hardwood species.

Jack pine dominates the softwood scene with an estimated volume of 1.9 million cords (31.2%). Black spruce is estimated at 719 thousand cords, white spruce at 513 thousand cords and balsam fir and tamarack at a combined volume of 170 thousand cords.

White poplar is estimated at 2.3 million cords (38.3%) and is the species having the largest volume of cordwood. Black poplar and white birch have a combined, estimated cordwood volume of 457 thousand cords (about 7.5 per cent of the total cordwood volume).

In the Bronson Provincial Forest area, the total volume of cordwood for the 68 thousand acres of forested land covered by this report is estimated at 185 thousand cords, of which 143 thousand cords (77.3%) are of the hardwood species and 42 thousand cords (22.7%) of the softwood species.

The stands of timber, making up the cordwood volumes, are situated for the most part in scattered localities where, for one reason or another, they have escaped the numerous fires which served to destroy so much of the forest area.

White poplar composes approximately 62 per cent of the total, estimated cordwood volume — 114 thousand cords. Black poplar and white birch are represented by stands having a combined estimated volume of only 29 thousand cords.

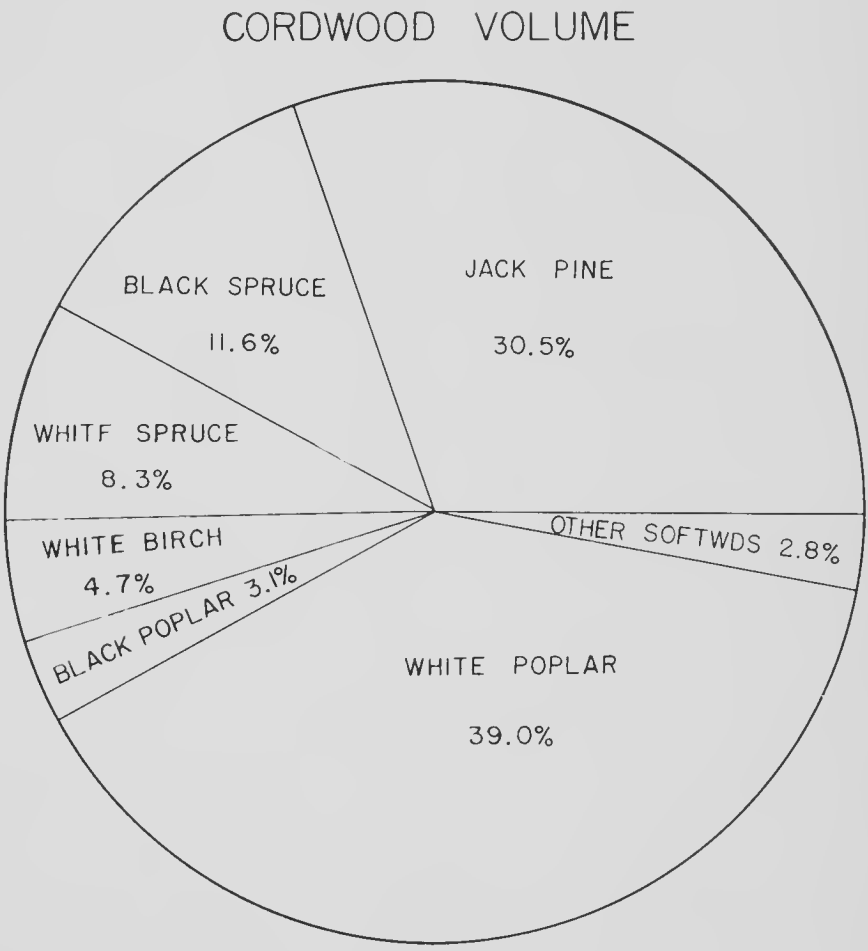


Figure 6 (Source table 5)

The softwood species have a total of 42 thousand cords. Jack pine predominates with 19 thousand cords, while black spruce is estimated at 11 thousand. White spruce and tamarack are equally represented in the area with an estimated volume of 6 thousand cords each. (see Table 5 and Figure 6).

(c) Merchantable Cubic Foot Volume

Cubic-foot volumes make possible a comparison of the wood volumes in trees 4 - 9 inches in diameter (otherwise expressed in cords) and the wood volume in trees 10 inches and over (otherwise expressed as board feet).

The total cubic foot volume of the Buffalo Narrows - Beauval area is estimated at 691 million cubic feet, of which 518 million cubic feet (75.0%) are in the 4 - 9 inch diameter range and 173 million cubic feet (25.0%) in the 10-inch-and-over diameter classes.

White poplar, the principal species, has a volume of 199 million cubic feet in the smaller diameter range and a volume of 97 million cubic feet in the 10-inch-and-over diameter range. The jack pine species, which accounts for more than 26 per cent of the cubic foot estimate has its larger volume in the 4 - 9 inch diameter range—a volume of 161 million cubic feet—whereas the volume for the 10-inch-and-over diameter range is only 21 million cubic feet. White spruce volumes are more evenly distributed in the two diameter ranges, but black spruce shows a definite preponderance of trees in the 4 - 9 inch range.

Balsam fir, tamarack, black poplar and white birch, the species which have a somewhat small representation in the general forest stand, follow the trend set by the main species in the forest with approximately 77 per cent of their total volume in trees in the smaller diameter class.

The forest stands of the Bronson Provincial Forest are estimated at 18.8 million cubic feet, of which 15.8 million cubic feet (84.0%) are found in trees of the 4 - 9 inch diameter range, with only 3.0 million cubic feet (16.0%) in the larger diameter range.

The past history of the Bronson Provincial Forest is again responsible for the larger distribution of forest stands in the smaller diameter range.

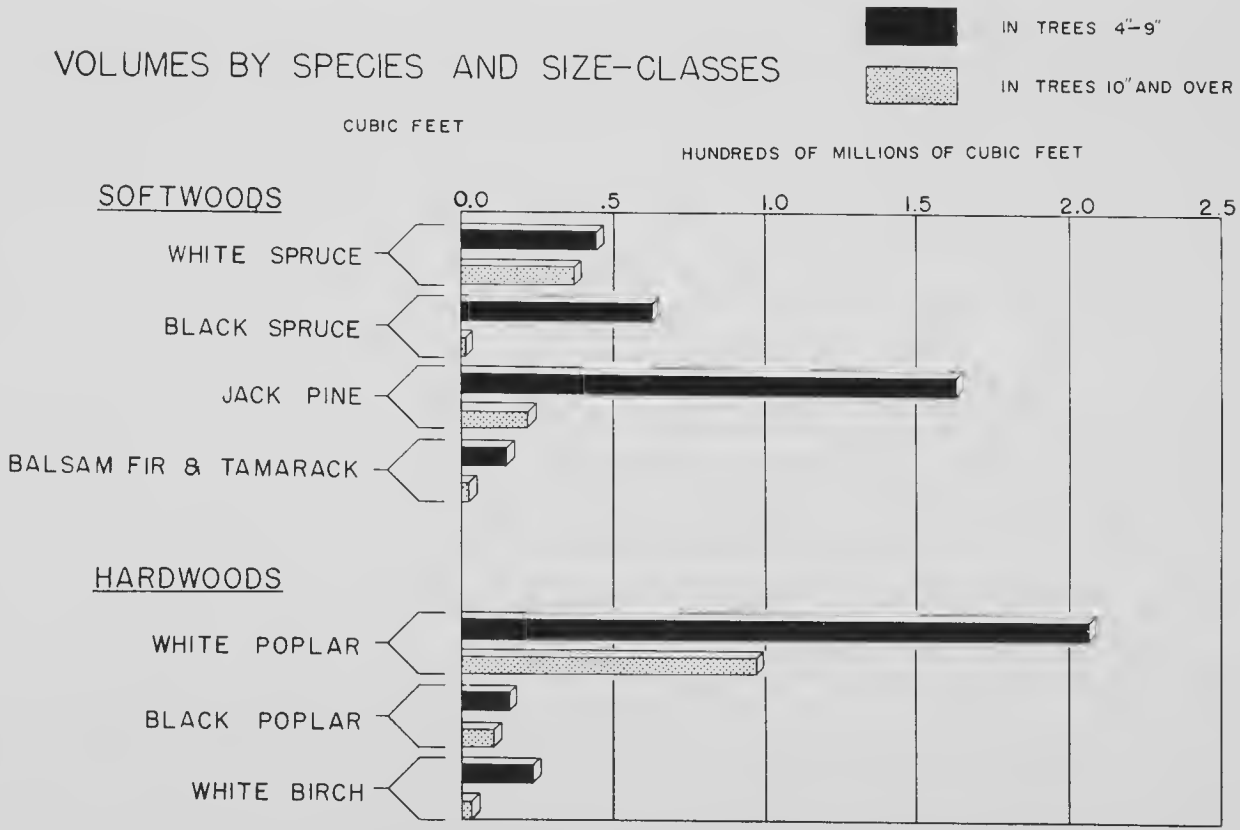


Figure 7 (Source Table 6)

CURRENT GROWTH

The combined report area contains approximately 948 thousand acres of presently productive forest land. This area is not inclusive of burned-over land which may be classed as potentially productive (see Table 2). After due consideration of natural mortality—but not of cull—it was found that the productive forest area was currently increasing its tree volume at the rate of 15 million cubic feet per year (Table 9). In theory, this means an annual growth increment of 16 cubic feet per acre.

At the present time, the productive forest areas have a volume of timber, in trees in the 4 - 9 inch diameter range, amounting to about 534 million cubic feet. This volume is 75 per cent of the total volume for the whole productive forest area and is made up for the most part by the younger, faster-growing trees. White poplar and jack pine together make up about 70 per cent of the 534 million cubic feet in the 4 - 9 inch diameter range. Likewise, these species account for about 74 per cent of the total current annual increment of 12 million cubic feet or 141 thousand cords in this range. The current annual increment for white poplar in the 4 - 9 inch diameter group is 4.9 million cubic feet or 58 thousand cords; for jack pine it is 4 million cubic feet or 47 thousand cords.

The volume of timber in trees of all species in the 10-inch-and-over diameter range, is 176 million cubic feet, and is 25 per cent of the total volume of the forest stands. White poplar is the predominant tree species, in this diameter range, as it also is in the smaller diameter range, and has an annual current growth increment amounting to about 1.9 million cubic feet or 9.6 million board feet. White spruce has a more important position in this diameter group, having a total cubic foot volume of 38 million cubic feet (187 million board feet) and a current annual increment of 415 thousand cubic feet or about 2 million board feet. The jack pine species which makes up about 12 per cent of the cubic foot volume in trees 10 inches and over in diameter, has a volume of about 22 million cubic feet, and a current annual increment of 423 thousand cubic feet or 2.1 million board feet.

Since the annual harvest of white spruce is only in the region of 800,000 board feet—an amount well below the possible of 2 million indicated by the current annual increment—it would appear that the annual cut might be greatly increased. However, any such increase would have to take into account the amount of timber in stands presently regarded as inaccessible.

Stands of white poplar are predominant, but little, if any, of this species is presently harvested. The total current annual increment of white poplar is 58,000 cords in the smaller trees of 4 - 9 inches d.b.h. and 9.6 million board feet in trees of 10 inches d.b.h. and over, which indicates that a substantial annual cut of poplar is possible in this area.

FIRE PROTECTION

(a) Buffalo Narrows - Beauval Area

There are six primary steel towers in this and the surrounding area, maintained for the purpose of the early detection of any forest fire. One of those is situated directly in the survey area, 7 miles southeast of Beauval. The others are located adjacent to the area providing a good detection coverage. These steel towers are radio-equipped and are permanently manned during the fire season.

The Buffalo Narrows - Beauval area is considered in the priority area for fire detection and suppression. In this connection, the Northern Administration District maintains a Stinson aircraft for patrol during the fire season and the Fire Control Branch maintains 16 Smokejumpers and equipment at La Ronge for the quick suppression of any fire detected.

All aircraft, both on scheduled and chartered flights, co-operate in this matter and play an important part in detecting forest fires.

(b) Bronson Provincial Forest

As mentioned earlier in this report, forest fires, often originating across the Saskatchewan - Alberta boundary, have destroyed most of the timber growth in the Bronson Provincial Forest. In order to stop the continuous destructive force of these fires more adequate measures have recently been taken to improve the means of their detection and suppression.

Three fire towers with good visibility ranges have been erected to provide complete coverage of the Bronson Provincial Forest and the surrounding country. The towers are located north of Onion Lake (an 80-foot steel tower), at the Horsehead Creek, north of Brightsand Lake (another 80-foot steel tower), and on Nelson Hill (a 20-foot wooden tower equipped with living quarters). Those three towers are radio-equipped and are permanently manned during the fire season.

In addition to the towers, many miles of fire guards — almost completely around the Bronson Forest—have been made and an adequate network of roads has been constructed to allow the suppression crews quick access to any fire. Increased grazing within the boundaries of the forest lessens the danger of grass fires. Public co-operation in the all-important field of forest-fire prevention is sought through radio messages, fire-protection signs, programs of Forest Conservation Week, displays, lectures in schools, etc.

TABLE 1—Land Classification in the Buffalo Narrows - Beauval Report Area, 1955

Class of Land	Total Report Area		Buffalo Narrows - Beauval Area		Bronson Forest Area	
	Acres	Per Cent	Acres	Per Cent	Acres	Per Cent
TOTAL AREA	3,060,262		2,607,986		452,276	
PROVINCIAL FORESTS, Total	2,893,904	100.0	2,565,875	100.0	328,029	100.0
LAND:						
Productive Forest	1,250,198	43.2	975,532	38.0	274,666	83.7
Non-productive Forest	808,549	27.9	795,763	31.0	12,786	3.9
Non-forested Land	191,786	6.6	172,767	6.7	19,019	5.8
WATER	643,371	22.3	621,813	24.3	21,558	6.6
ALL OTHER AREAS	166,358		42,111		124,247	
Settled Area	124,247				124,247	
Indian Reserve	42,111		42,111			

TABLE 2—Areas of Productive Forest Land by Cover-Types and Stand Size-Classes, 1955

Cover-Type	Total		Stand Size - Class			
	Area in Acres	Per Cent Productive Forests	Sawtimber Over 70 feet	Cordwood 50 - 70 feet	Cordwood 30 - 50 feet	Reproduction Under 30 feet
Buffalo Narrows - Beauval Area						
Softwood	369,596					
Spruce	179,685	18.4	793	5,222	66,788	106,882
Pine	189,911	19.4		19,883	122,836	47,187
Mixedwood	228,935	23.5	4,152	55,928	49,814	119,071
Hardwood	280,762	28.8	16,901	94,383	83,526	85,952
All Cover-Types	879,323		21,846	175,421	322,934	359,092
Per Cent		90.1	2.2	18.0	33.1	36.8
Bronson Provincial Forest Area						
Softwood	5,165					
Spruce	3,322	1.2	——	10	2,451	861
Pine	1,843	0.7	——	123	1,720	
Mixedwood	4,284	1.6	——	563	2,563	1,158
Hardwood	59 042	21.5	——	1,292	18,459	39,291
All Cover-Types	68,491		——	1 938	25,193	41.310
Per Cent		25.0	——	0.7	9.2	15.1
Combined Report Area						
Softwood	374,761					
Spruce	183,007	14.6	793	5,232	69,239	107,743
Pine	191.754	15.3	——	20,011	124,556	47,187
Mixedwood	233,249	18.6	4,152	56,491	52,377	120,229
Hardwood	339,804	27.2	16,901	95,675	101,985	125,243
All Cover-Types *	947,814		21,846	177,409	348,157	400,402
Per Cent		75.7	1.7	14.2	27.8	32.0

* Productive Forest Land of 1,250,198 acres (Table 1) also includes burn-overs 301,526 acres or 24.2% and cleared areas 858 acres or 0.1%.

TABLE 3—Land Classification of Productive Forest Area by Map Sheets, 1955

(Acres)

Map Sheet	Total Area	Area in Provincial Forest								
		Total Provincial Forest Area *	Productive Forest Land							
			Total Productive		Softwood		Mixed-wood	Hardwood	Burn-over and Clearing
			Acres	Per Cent	Spruce	Pine			
74 C/ 2 Peter Pond Lake	213,901	213,901	92,132	43.1	35,438	7,763	20,205	4,862	23,864
73 N/ 1 Canoe Lake	219,379	209,468	87,613	41.8	3,562	4,489	23,382	35,666	10,514
73 N/ 8 Apps Lake	218,022	218,022	39,891	18.3	7,995	5,216	9,122	10,840	6,718
73 N/ 9 Kazan Lake	216,653	216,653	102,111	47.1	15,661	32,711	22,316	15,731	15,692
73 N/10 Niska Lake	216,653	216,653	86,550	39.9	14,143	5,859	23,162	39,891	3,495
73 N/15 Dillon	215,283	201,119	56,534	28.1	3,808	1,300	10,457	33,455	7,514
73 N/16 Buffalo Narrows	215,283	215,283	77,324	35.9	9,040	40,981	8,817	15,980	2,506
73 O/ 4 Beauval	219,379	211,236	102,385	48.5	8,430	29,088	27,868	34,847	2,152
73 O/ 5 Ile a la Crosse	218,022	212,798	90,267	42.4	23,725	15,234	20,340	27,357	3,611
73 O/12 Black Bay	216,653	216,653	99,045	45.7	12,867	30,750	19,470	19,479	16,479
73 P/ 3 Lac La Ronge	219,379	214,710	56,659	26.4	20,217	776	21,883	12,557	1,226
73 P/ 4 Morin Lake	219,379	219,379	85,021	38.7	19,799	15,744	16,943	30,097	2,438
73 F/13 Bronson Lake	226,138	206,061	172,252	83.6	2,367	1,731	2,951	36,063	129,140
73 F/14 Barthel	226,138	121,968	102,414	84.0	955	112	1,333	22,979	77,035
TOTALS	3,060,262	2,893,904	1,250,198	43.2	183,007	191,754	233,249	339,804	302,384

* Includes productive and non-productive forest, non-forested land and water

TABLE 4—Sawtimber Volumes by Species and Stand Size-Classes, 1955

(In thousands of board feet)

Species	Total		In Sawtimber Area	In Cordwood Area
	Amount	Per Cent	Stands Over 70 feet high	Stands 30 to 70 feet high
Buffalo Narrows - Beauval Area				
TOTAL SAWTIMBER	746,159	100.0	196,558	549, 601
Softwoods, total	301,425	40.4	54,756	246,669
White spruce	187.223	25.1	48,276	138,947
Black spruce	10,157	1.4	126	10,031
Jack pine	96.155	12.9	2,946	93,209
Balsam fir	6,163	0.8	3,408	2,755
Tamarack	1,727	0.2	———	1,727
Hardwoods, total	444,734	59.6	141,802	302,932
White poplar	384,075	51.5	126.236	257,839
Bla.k poplar	39,572	5.3	13,741	25,831
White birch	21,087	2.8	1,825	19,262
Bronson Provincial Forest Area				
TOTAL SAWTIMBER	13,049	100.0	———	13,049
Softwoods, total	6,226	47.7	———	6,226
White spruce	1,839	14.1	———	1,839
Black spruce	241	1.8	———	241
Jack pine	3,407	26.1	———	3,407
Balsam fir	18	0.2	———	18
Tamarack	721	5.5	———	721
Hardwoods, total	6,823	52.3	———	6,823
White poplar	5,314	40.7	———	5,314
Black poplar	952	7.3	———	952
White birch	557	4.3	———	557
Combined Report Area				
TOTAL SAWTIMBER	759,208	100.0	196,558	562,650
Softwoods, total	307,651	40.5	54,756	252,895
White spruce	189,062	24.9	48,276	140,786
Black spruce	10,398	1.4	126	10,272
Jack pine	99,562	13.1	2,946	96,616
Balsam fir	6,181	0.8	3,408	2,773
Tamarack	2,448	0.3	———	2,448
Hardwoods, total	451,557	59.5	141,802	309,755
White poplar	389, 390	51.3	126,236	263,154
Black poplar	40,523	5.3	13,741	26,782
White birch	21,644	2.9	1,825	19,819

TABLE 4A—Sawtimber Volume Distribution by Diameter Groups in the Combined Survey Area

(In thousands of board feet)

Species	10 Inches and over	10 and 11 inch class	12 and 13 inch class	14 inches and over
	Board Feet			
ALL SPECIES	759,208	355,006	202,661	201,541
	100.0%	46.8%	26.7%	26.5%
Softwoods, total	307,651	130,099	73,313	104,239
	100.0%	42.3%	23.8%	33.9%
White spruce	189,062	60,820	47,281	80,961
	100.0%	32.2%	25.0%	42.8%
Black spruce	10,398	8,583	1,815	———
	100.0%	82.5%	17.5%	———
Jack pine	99,562	55,770	22,556	21,236
	100.0%	56.0%	22.7%	21.3%
Balsam fir	6,181	2,478	1,661	2,042
	100.0%	40.1%	26.9%	33.0%
Tamarack	2,448	2,448	———	———
	100.0%	100.0%	———	———
Hardwoods, total ..	451,557	224,907	129,348	97,302
	100.0%	49.8%	28.6%	21.6%
White poplar	389,390	193,852	116,034	79,504
	100.0%	49.8%	29.8%	20.4%
Black poplar	40,523	14,095	9,836	16,592
	100.0%	34.8%	24.3%	40.9%
White birch	21,644	16,960	3,478	1,206
	100.0%	78.3%	16.1%	5.6%

TABLE 5—Cordwood Volumes by Species and Stand Size-Classes, 1955

(In thousands of cords)

Species	In All Areas		In Sawtimber Area	In Cordwood Area	In Reproduction Area
	Amount	Per Cent	Over 70 feet	30 - 70 feet	Under 30 feet
Buffalo Narrows - Beauval Area					
TOTAL CORDWOOD	6,094	100.0	247	5,433	414
Softwoods, total	3,301	54.2	47	2,952	302
White spruce	513	8.4	38	464	11
Black spruce	719	11.8	—	590	129
Jack pine	1,899	31.2	—	1,797	102
Balsam fir	88	1.4	9	79	—
Tamarack	82	1.4	—	22	60
Hardwoods, total	2,793	45.8	200	2,481	112
White poplar	2,336	38.3	177	2,082	77
Black poplar	182	3.0	11	165	6
White birch	275	4.5	12	234	29
Bronson Provincial Forest Area					
TOTAL CORDWOOD	185	100.0	—	156	29
Softwoods, total	42	22.7	—	42	—
White spruce	6	3.3	—	6	—
Black spruce	11	5.9		11	—
Jack pine	19	10.3	—	19	—
Balsam fir					
Tamarack	6	3.2	—	6	—
Hardwoods, total	143	77.3	—	114	29
White poplar	114	61.6	—	89	25
Black poplar	12	6.5	—	10	2
White birch	17	9.2	—	15	2
Combined Report Area					
TOTAL CORDWOOD	6,279	100.0	247	5,589	443
Softwoods, total	3,343	53.2	47	2,994	302
White spruce	519	8.3	38	470	11
Black spruce	730	11.6	—	601	129
Jack pine	1,918	30.5	—	1,816	102
Balsam fir	88	1.4	9	79	—
Tamarack	88	1.4	—	28	60
Hardwoods, total	2,936	46.8	200	2,595	141
White poplar	2,450	39.0	177	2,171	102
Black poplar	194	3.1	11	175	8
White birch	292	4.7	12	249	31

TABLE 6—Cubic Foot Volume by Species and Tree Diameter Groups, 1955

(In Thousands of Cubic Feet)

Species	All Diameters		Diameter Groups	
	Amount	Per Cent	4 - 9 Inches	10 Inches and over
Buffalo Narrows - Beauval Area				
ALL SPECIES	691,354	100.0	518,240 75.0%	173,114 25.0%
Softwoods, total	343,858	49.7	280,724	63,134
White spruce	81,324	11.7	43,555	37,769
Black spruce	63,220	9.1	61,180	2,040
Jack pine	182,603	26.4	161,461	21,142
Balsam fir	9,354	1.4	7,534	1,820
Tamarack	7,357	1.1	6,994	363
Hardwoods, total	347,496	50.3	237,516	109,980
White poplar	295,083	42.7	193,564	96,519
Black poplar	25,692	3.7	15,487	10,205
White birch	26,721	3.9	23,465	3,256
Bronson Provincial Forest Area				
ALL SPECIES	18,800	100.0	15,832 84.0%	2,968 16.0%
Softwoods, total	5,000	26.6	3,706	1,294
White spruce	867	4.6	519	348
Black spruce	1,039	5.5	987	52
Jack pine	2,396	12.8	1,654	742
Balsam fir	43	0.2	36	7
Tamarack	655	3.5	510	145
Hardwoods, total	13,800	73.4	12,126	1,674
White poplar	11,004	58.5	9,688	1,316
Black poplar	1,244	6.6	982	262
White birch	1,552	8.3	1,456	96
Combined Report Area				
ALL SPECIES	710,154	100.0	534,072 75.0%	176,082 25.0%
Softwoods, total	348,858	49.1	234,430	64,428
White spruce	82,191	11.6	44,074	38,117
Black spruce	64,259	9.0	62,167	2,092
Jack pine	184,999	26.1	163,115	21,884
Balsam fir	9,397	1.3	7,570	1,827
Tamarack	8,012	1.1	7,504	508
Hardwoods, total	361,296	50.9	249,642	111,654
White poplar	306,087	43.1	208,252	97,835
Black poplar	26,936	3.8	16,469	10,467
White birch	28,273	4.0	24,921	3,352

TABLE 6A—The Volume and Influence of 4-Inch Trees on the Volume of 4-to-9-Inch Class in the Combined Survey Area

(In thousands of cubic feet)

Species	Diameter Groups		
	4 - 9 inches	4 - inch class	
		Amount	Per Cent
ALL SPECIES	534,072	82,786	15.5
Softwoods, total	284,430	50,271	17.6
White spruce	44,074	4,648	10.5
Black spruce	62,167	16,259	26.2
Jack pine	163,115	26,627	16.3
Balsam fir	7,570	1,237	16.3
Tamarack	7,504	1,500	20.0
Hardwoods, total	249,642	32,515	13.0
White poplar	203,252	25,195	12.1
Black poplar	16,469	1,844	11.2
White birch	24,921	5,476	22.0

TABLE 7—Average Volume per Acre of Productive Forest by Stand Size-Classes and Tree Diameter Groups in Report Area, 1955

Stand Size-Class	All Diameters (cubic feet)	Diameter Groups (inches)	
		4 - 9 inches (cords)	10 inches and over (board feet)
Buffalo Narrows - Beauval Area			
ALL SIZE CLASSES	709	6.2	765
Sawtimber	2,966	11.3	8,997
Cordwood	1,186	10.9	1,102
Reproduction	98	1.1	
Bronson Provincial Forest Area			
ALL SIZE CLASSES	68	0.7	47
Sawtimber			
Cordwood	598	5.7	480
Reproduction	61	0.7	
Combined Report Area			
ALL SIZE CLASSES	607	5.0	568
Sawtimber	2,966	11.3	8,997
Cordwood	1,156	10.6	1,070
Reproduction	94	1.1	

TABLE 8—Wood Volume in Provincial Forests of the Survey Area by Map Sheets, 1955

Map Sheet	Thousands of Board Feet			Thousands of Cords			Thousands of Cubic Feet		
	Total	Softwood	Hardwood	Total	Softwood	Hardwood	Total	Softwood	Hardwood
74 C/ 2 Peter Pond Lake .	23,035	12,243	10,792	276	172	104	28 521	17,211	11,310
73 N/ 1 Canoe Lake	167,077	53,738	113,339	736	234	502	100,032	31,137	68,895
73 N/ 8 Apps Lake	33,664	14,360	19,304	247	128	119	28,870	13,880	14,990
73 N/ 9 Kazan Lake	57,892	27,784	30,108	680	465	215	71,398	45,499	25,899
73 N/10 Niska Lake	93,622	33,656	59,966	574	211	363	71,019	25,021	46,028
73 N/15 Dillon	100,533	30,559	69,974	351	101	250	52,294	14,805	37,489
73 N/16 Buffalo Narrows .	34,024	19,112	14,912	464	353	111	47,109	34,042	13,067
73 O/ 4 Beauval	44,661	23,019	21,642	597	364	233	61,730	35,875	25,855
73 O/ 5 Ile a la Crosse	14,419	7,610	6,809	262	163	99	25,529	15,425	10,104
73 O/12 Black Bay	22,030	12,185	9,845	490	366	124	46,874	33,694	13,180
73 P/ 3 Lac la Ronge	51,352	26,842	24,510	489	293	196	52,867	30,475	22,392
73 P/ 4 Morin Lake	103,850	40,317	63,533	928	451	477	105,081	46,794	58,287
73 F/13 Bronson Lake	10,138	5,031	5,107	143	32	111	14,565	3,900	10,665
73 F/14 Barthel	2,911	1,195	1,716	42	10	32	4,235	1,100	3,135
TOTALS	759,203	307,651	451,557	6,279	3,343	2,936	710,154	348,858	361,296

TABLE 9—Periodic Annual Volume Increment by Species and Tree Diameter Groups in the Survey Area, 1955

Species	All Diameters		Diameter Groups (inches)	
			4 - 9 inches	10 inches and over
	Thousands of cubic feet	Per Cent	Thousands of cords *	Thousands of board feet **
ALL SPECIES	15,171	100.0	141	15,338
Softwoods, total	7,102	46.8	72	4,408
White spruce	1,287	8.5	10	2,075
Black spruce	997	6.6	11	90
Jack pine	4,459	29.4	47	2,115
Balsam fir	192	1.3	2	110
Tamarack	173	1.0	2	18
Hardwoods, total	8,069	53.2	69	10,930
White poplar	6,894	45.4	58	9,650
Black poplar	560	3.7	4	1,020
White birch	615	4.1	7	260

* Cubic feet converted to cords. Basis: 85 cu. ft. equal one cord.

** Cubic feet converted to board feet. Basis: one cubic foot equal five board feet.

METHOD OF SURVEY

Aerial photographs, combined with comparative ground sampling, formed the basis of the survey. The photos (scale - 1 inch to 5,280 feet) used for the field work were taken vertically during the summer of 1952. More recent photos, also summer verticals (scale - 1 inch to 1,320 feet) taken in 1954, were used to outline the cover-type boundaries, which were then transferred to base maps for area and land classification. The areas were measured by the dot-count method.

Forest stands on productive land were classified into four cover-types: Hardwood, Softwood-spruce, Softwood-jack pine, and Mixedwood. Each cover-type was divided further into four density levels, based on the percentage of tree crown closure, and into four height classes according to the average height of dominant stand. This stand classification brought the number of forest sub-types to 64.

To determine stand volume, 420 sample plots (1/5 acre in size) were located and measured during the summer of 1954 in the Buffalo Narrows-Beauval area (Photo No. 10). In addition, 29 plots located and measured, in this area during the previous summer for the Northern Reconnaissance survey, as well as some 200 sample plots from growth and other surveys in similar areas, were used to strengthen the applied stand tables.

The one-fifth acre sample plots were located at random or along random lines in the representative cover-types. The sampling results for the representative sub-types were applied to the whole sub-type area, to produce the estimates in terms of merchantable volume. The volumes for each tree species in each of the sub-types were calculated separately and expressed in cubic feet and cords for trees 4 - 9 inches d.b.h., and in cubic feet and board feet for trees 10 inches and over.

Local tree-volume tables were prepared from appropriate standard volume tables and checked against the sectional volume measurements of randomly cut taper trees. The same taper-tree measurements provided data for cull reductions.

The statements on current growth were based on rates of growth developed in a series of special growth studies, and were adjusted to the actual stand tables of each sub-type.

ACCURACY OF DATA

Inaccuracies in the forest inventory estimates may arise from such sources as errors in the classification of forest stands, both in photo interpretation and in the field survey and also in the collection and compilation of field data. Another source of error is in the intensity of sampling, measured and expressed as the sampling error. The former result from instances of judgement or technique and could be called human errors, while sampling errors are theoretical measures of the reliability of estimates and are based on the variability of sample measurements.

The human errors were minimized by maintaining a uniformity of standards in photo classification, plot sampling, construction of local volume tables, stand tables and cull factors. Sample plots with more than

twice the standard deviation in volume were rejected and the suitability of local volume tables was judged on the basis of an aggregate difference of close to 1 per cent and an average deviation of less than 10 per cent.

Statistical analysis showed that the pooled sampling error for 94.6 per cent of the total cubic foot volume (the volume contained in the covertypes of the 2nd, 3rd and 4th height classes) was plus or minus 1.86 per cent. That is, the total merchantable volume for the combined report area is within plus or minus 1.86 per cent of the stated volume. The sampling error applies to 57.8 per cent. (548 thousand acres) of the productive forest area. Area estimates are free from sampling error as the report area was covered by complete aerial survey.

The degree of accuracy in regard to the sampling error can be controlled by increasing the number of plots or the size of plots. In this report the volume estimates were improved by strengthening the stand tables with measurements from other surveys.

Photo No. 10. Inventory sampling crew measuring the taper and thickness of the bark of a sample tree.

DEFINITION OF TERMS

Area Classification

Forest Land Area

Productive Forest—Land which will produce a forest crop of merchantable size and form within a reasonable period of time.

Non-productive Forest—Land incapable of producing a forest crop of merchantable size within a reasonable period of time. Includes treed muskegs, treed rock and a proportion of softwood stands judged to be stagnant.

Non-forested—Includes open swamps, grassland, brush, rock, cultivated land and urban areas.

Stand Size-Classes

Sawtimber Area—Stands over 70 feet in height.

Cordwood Area—Stands averaging 30 to 70 feet in height.

Reproduction Area—Stands under 30 feet in height.

Cover-Types

Softwood—Stands containing over 75% softwoods by volume.

Mixedwood—Stands in which neither softwoods nor hardwoods constitute 75% of the stand volume.

Hardwood—Stands containing over 75% hardwoods by volume.

Merchantability

Merchantable—Stands over 30 feet in height.

Young Growth—Stands on productive forest land under 30 feet in height.

Volume Classification

Sawtimber—Volume contained in trees 9.6 inches and over (diameter breast high), regardless of stand size-class in which they occur, expressed in board feet, Clark's International Log Rule, ¼″ kerf.

Cordwood—Volume of solid wood inside bark contained in trees 3.6 to 9.5 inches in diameter, expressed in standard cords of 128 cubic feet of stacked rough wood.

Cubic foot volume—Volume of solid wood inside bark of all trees 3.6 inches in diameter and over.

Limits of Merchantability:

For Sawtimber—Stump one foot, variable top diameter inside bark averaging 6 inches.

For Cordwood—Stump one foot, top diameter inside bark 3 inches.

Net merchantable volume—Merchantable volume of sound wood. Deductions for cull based on averaged measurements of felled sample trees. Volumes in this report are net merchantable unless otherwise noted.

Gross merchantable volume—Merchantable volume with no deductions made for cull where reliable cull factors are not yet available.

DEFINITION OF TERMS

Area Classification

Forest Land Area

Productive Forest—Land which will produce a forest crop of merchantable size and form within a reasonable period of time.

Non-productive Forest—Land incapable of producing a forest crop of merchantable size within a reasonable period of time. Includes treed muskegs, treed rock and a proportion of softwood stands judged to be stagnant.

Non-forested—Includes open swamps, grassland, brush, rock, cultivated land and urban areas.

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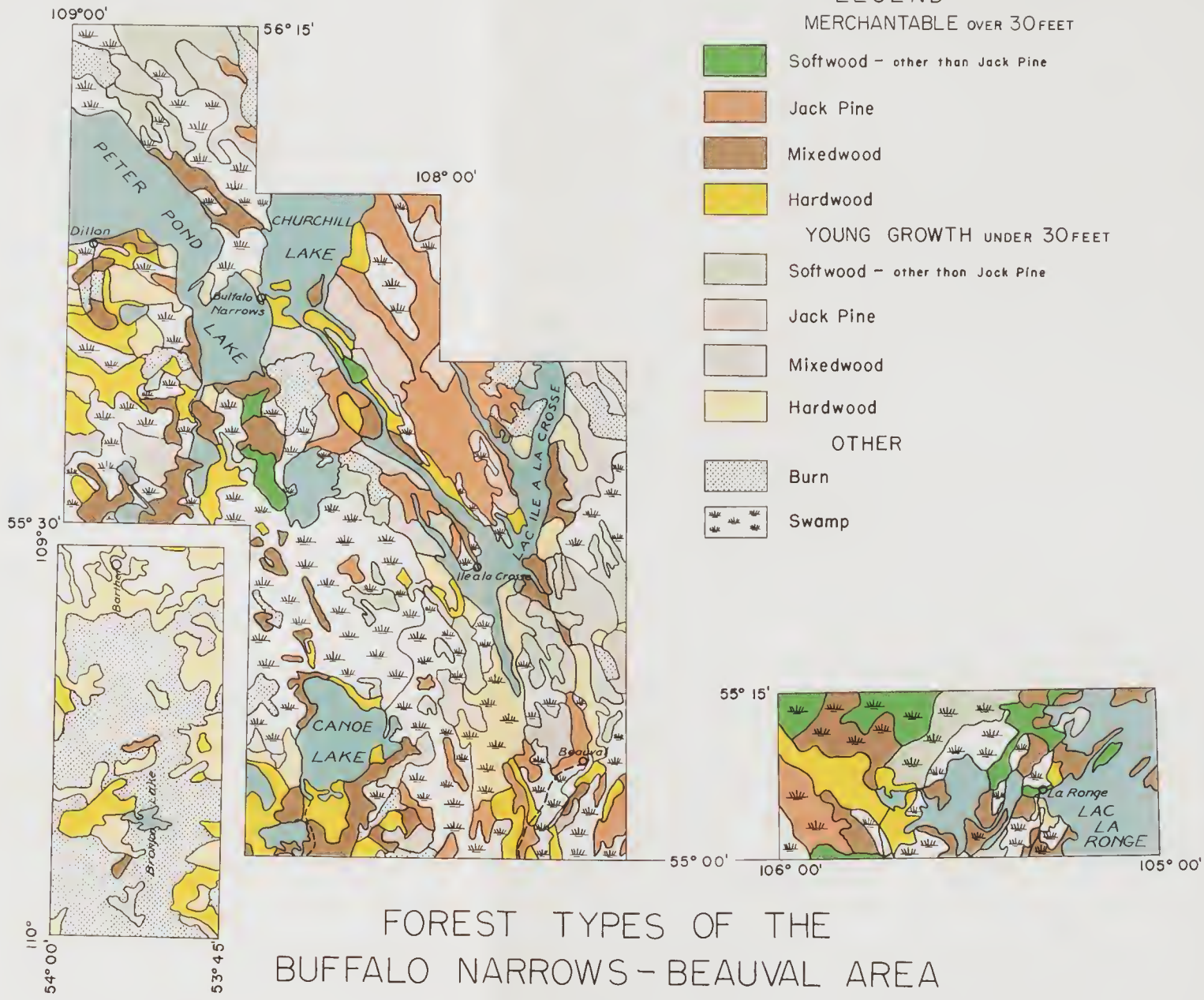
LEGEND
MERCHANTABLE OVER 30 FEET
Softwood – other than Jack Pine
Jack Pine
Mixedwood
Hardwood
YOUNG GROWTH UNDER 30 FEET
Softwood – other than Jack Pine
Jack Pine
Mixedwood
Hardwood
OTHER
Burn
Swamp
109°00'
56° 15'
108° 00'
55° 30'
109° 00'
55° 00'
55° 15'
106° 00'
105° 00'
110°
54° 00'
53° 45'
PETER POND
LAKE
Dillon
CHURCHILL LAKE
Buffalo Narrows
LAC ILE A LA CROSSE
Ile a la Crosse
CANOE LAKE
Beauval
Barrier
Bronson Lake
La Ronge
LAC LA RONGE
FOREST TYPES OF THE
BUFFALO NARROWS – BEAUVAL AREA
0 MILES 25
1956

LIST

Softwoods

White spruce — *Picea*
Black spruce — *Picea*
Jack pine — *Pinus*
Balsam fir — *Abies*
Tamarack — *Larix*

Hardwoods

White poplar — *Popu*
Black poplar — *Popu*
White birch — *Betul*

SP(

The costs of this publicatio
Saskatchewan and the Governi
agreement aimed at securing an
and maintaining this inventory

LIST OF SPECIES

			Tree Symbol
Softwoods			
White spruce	—	*Picea glauca* (Moench.) Voss	wS
Black spruce	—	*Picea mariana* (Mill.) B.S.P.	bS
Jack pine	—	*Pinus Banksiana* - Lamb.	jP
Balsam fir	—	*Abies balsamea* (L.) Mill.	bF
Tamarack	—	*Larix Laricina* (Du Roi) K. Koch	tL
Hardwoods			
White poplar	—	*Populus tremuloides* - Michx.	tA
Black poplar	—	*Populus balsamifera* - L.	bPo
White birch	—	*Betula papyrifera* - Marsh.	wB

SPONSORSHIP

The costs of this publication were shared jointly by the Province of Saskatchewan and the Government of Canada as part of a five-year agreement aimed at securing an inventory of the forests of Saskatchewan and maintaining this inventory in a current state.